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10/827,488	04/19/2004	Giuseppe Pirrone	LUCW:0007	3309

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EXAMINER	
THORNEWELL, KIMBERLY A	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,488	PIRRONE, GIUSEPPE	
	Examiner	Art Unit	
	Kimberly Thornewell	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28 have been presented for examination.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/23/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Interpretation

3. Regarding claim 9, the Applicant has not given a clear definition of a "legacy network." On page 13, lines 3-4 of the specification, there is a notion of CDN's being present "on a legacy network and on a more recent network." Therefore the Examiner gives the broadest reasonable interpretation of a "legacy network" as an old network.

4. Regarding claims 24, 25, 27 and 28, claims 24 and 27 claim the device as a "general purpose computer." Claims 25 and 28 claim the device as a "special purpose computer." Page 18, lines 1-7 of the specification, define a general purpose device as one "configured to execute installed routines implementing the modeling techniques," and a special purpose device as one "employed to implement the present modeling technique." Consequently, it is interpreted that a device is considered to be either "general purpose" or "special purpose" as long as it implements the claimed modeling technique.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 25 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 25 and 28 make reference to a "special purpose computer." On page 18, lines 1-7 of the specification, a special purpose device is defined as "a dedicated modeling station employing ASIC's or special purpose processors...employed to implement the present modeling technique." However, the term is still rendered indefinite as the Applicant has not set forth a clear definition of "special purpose processors."

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 14-18 and 26-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 14-18 are interpreted as being software, per se. Although the claim is directed to a tangible, machine-readable media comprising code, the Applicant has not set forth any tangible embodiments of the media. Claim 26 is directed to a method of loading a computer program onto a device.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Earnshaw et al., "*A Parallel Simulator for Performance Modelling of Broadband Telecommunication Networks*," published in Proceedings of the 1992 Winter Simulation Conference.

As per claim 1,

Earnshaw discloses a method for modeling a communication system, comprising the steps of:

- assigning a plurality of simulated messages (**page 1366 column 2 section 3.1 lines 11-19**, "passing messages between processors") to one or more simulated external nodes (**page 1372 figure 8**, external nodes being those transputers with local exchanges) based upon at least a simulated call model (**page 1368 section 3.2.4 lines 1-5**, "event list") and a simulated network configuration (**page 1366 column 2 section 3.1 lines 11-19**, "network...configured in arbitrary topologies");
- distributing the plurality of simulated messages between a plurality of simulated active links (**page 1372 figure 8**, links between local exchanges and turnk exchanges) connecting the one or more simulated external nodes to a plurality of simulated processors of a simulated telecommunication facility based on at least

the simulated network configuration (**figure 8,** facility being the group of transputers, i.e. microprocessors, with the trunk exchange);

- distributing the plurality of simulated messages between the plurality of simulated processors (**figure 8,** shown as each local exchange being dually connected to two trunk exchanges. See p. 1372 column 1 lines 1-6) based on at least a simulated network architecture (**page 1365 column 2 second full paragraph lines 1-6**);
- generating a plurality of simulated outgoing messages based upon at least the plurality of simulated messages and the simulated call model (**page 1368 column 2 last paragraph lines 1-6**, outgoing messages being "switched" messages);
- and distributing the plurality of simulated outgoing messages between the plurality of simulated active links based on at least the simulated network configuration and the simulated network architecture (**figure 8,** messages being sent between processors. See p. 1372 column 2 first full paragraph lines 1-9).

As per claim 2,

Earnshaw discloses estimating a contribution to processor occupancy for one or more processors of the plurality of simulated processors based on the simulated network architecture (**page 1372 column 1 first paragraph lines 6-13**).

As per claim 3,

Earnshaw discloses deriving a processor utilization for one or more processors of the plurality of simulated processors based on the respective contributions to processor occupancy (**page 1372 column 1 first paragraph lines 13-16**).

As per claim 4,

Earnshaw discloses deriving a bandwidth utilization for one or more links of the plurality of simulated active links based on the distribution of the plurality of simulated messages between the one or more simulated active links (**page 1367 column 1 section 3.2.2 lines 1-6**).

As per claim 5,

Earnshaw discloses deriving a message load distribution based on at least the distribution of the plurality of simulated messages between the one or more respective simulated processors (**page 1368 column 1 section 3.2.5 lines 8-13**).

As per claim 6,

Earnshaw discloses the simulated telecommunication facility representing a mobile switching center (**page 1366 column 2 section 3.1 lines 11-19**, switching between processors).

As per claim 7,

Earnshaw discloses the one or more simulated external nodes representing an electronic switching system (**figure 8,** transputers having "local exchanges," i.e. switching).

As per claim 8,

Earnshaw discloses the plurality of simulated processors representing at least a direct link node (**figure 8,** direct links between the local exchange and trunk exchange).

As per claim 10,

Earnshaw discloses constructing a mobile switching center based on the simulated network configuration (**figure 8, page 1372 column 1 lines 1-6**), wherein the simulated network configuration results in a desired distribution of the plurality of simulated messages between the plurality of active links (**page 1367 column 1 section 3.2.1 lines 1-5**).

As per claim 12,

Earnshaw discloses procuring a processor-based component based on the simulated network configuration (**figure 2**, transputer T1 procuring transputer T3), wherein the simulated network configuration results in a desired distribution of the plurality of simulated messages between the plurality of simulated active links (**page 1367 column 1 section 3.2.1 lines 1-5**).

As per claim 13,

Earnshaw discloses constructing a link based on the simulated network configuration (**page 1368 column 2 second paragraph lines 1-7**), wherein the simulated network configuration results in a desired distribution of the plurality of simulated messages between the plurality of simulated active links (**page 1367 column 1 section 3.2.1 lines 1-5**).

As per claim 14,

Earnshaw discloses a tangible, machine readable media, comprising:

- code adapted to assign a plurality of simulated messages (**page 1366 column 2 section 3.1 lines 11-19**, "passing messages between processors") to one or more simulated external nodes (**page 1372 figure 8**, external nodes being those transputers with local exchanges) based upon at least a simulated call model (**page 1368 section 3.2.4 lines 1-5**, "event list") and a simulated network configuration (**page 1366 column 2 section 3.1 lines 11-19**, "network...configured in arbitrary topologies");
- code adapted to distribute the plurality of simulated messages between a plurality of simulated active links (**page 1372 figure 8**, links between local exchanges and turnk exchanges) connecting the one or more simulated external nodes to a plurality of simulated processors of a simulated telecommunication facility based on at least the simulated network configuration (**figure 8,** facility being the group of transputers, i.e. microprocessors, with the trunk exchange);
- code adapted to distribute the plurality of simulated messages between the plurality of simulated processors (**figure 8,** shown as each local exchange being dually connected to two trunk exchanges. See p. 1372 column 1 lines 1-6) based on at least a simulated network architecture (**page 1365 column 2 second full paragraph lines 1-6**);
- code adapted to generate a plurality of simulated outgoing messages based upon at least the plurality of simulated messages and the simulated call model (**page**

1368 column 2 last paragraph lines 1-6, outgoing messages being "switched" messages);

- and code adapted to distribute the plurality of simulated outgoing messages between the plurality of simulated active links based on at least the simulated network configuration and the simulated network architecture (**figure 8,** messages being sent between processors. See p. 1372 column 2 first full paragraph lines 1-9).

As per claim 15,

Earnshaw discloses code adapted to estimate a contribution to processor occupancy for one or more processors of the plurality of simulated processors based on the simulated network architecture (**page 1372 column 1 first paragraph lines 6-13**).

As per claim 16,

Earnshaw discloses code adapted to derive a processor utilization for one or more processors of the plurality of simulated processors based on the respective contributions to processor occupancy (**page 1372 column 1 first paragraph lines 13-16**).

As per claim 17,

Earnshaw discloses code adapted to derive a bandwidth utilization for one or more links of the plurality of simulated active links based on the plurality of simulated outgoing messages between the one or more simulated active links (**page 1367 column 1 section 3.2.2 lines 1-6**).

As per claim 18,

Earnshaw discloses code adapted to derive a message load distribution based on at least the distribution of the plurality of simulated messages between the one or more respective simulated processors (**page 1368 column 1 section 3.2.5 lines 8-13**).

As per claim 19,

Earnshaw discloses a device for modeling a communication system, comprising:

- a processor configured to execute code adapted to:
    - assign a plurality of simulated messages (**page 1366 column 2 section 3.1 lines 11-19**, "passing messages between processors") to one or more simulated external nodes (**page 1372 figure 8**, external nodes being those transputers with local exchanges) based upon at least a simulated call model (**page 1368 section 3.2.4 lines 1-5**, "event list") and a simulated network configuration (**page 1366 column 2 section 3.1 lines 11-19**, "network...configured in arbitrary topologies");
    - distribute the plurality of simulated messages between a plurality of simulated active links (**page 1372 figure 8**, links between local exchanges and turnk exchanges) connecting the one or more simulated external nodes to a plurality of

simulated processors of a simulated telecommunication facility based on at least the simulated network configuration (**figure 8,** facility being the group of transputers, i.e. microprocessors, with the trunk exchange);

- distribute the plurality of simulated messages between the plurality of simulated processors (**figure 8,** shown as each local exchange being dually connected to two trunk exchanges. See p. 1372 column 1 lines 1-6) based on at least a simulated network architecture (**page 1365 column 2 second full paragraph lines 1-6**);
- generate a plurality of simulated outgoing messages based upon at least the plurality of simulated messages and the simulated call model (**page 1368 column 2 last paragraph lines 1-6**, outgoing messages being "switched" messages);
- and distribute the plurality of simulated outgoing messages between the plurality of simulated active links based on at least the simulated network configuration and the simulated network architecture (**figure 8,** messages being sent between processors. See p. 1372 column 2 first full paragraph lines 1-9).

As per claim 20,

Earnshaw discloses code adapted to estimate a contribution to processor occupancy for one or more processors of the plurality of simulated processors based on the simulated network architecture (**page 1372 column 1 first paragraph lines 6-13**).

As per claim 21,

Earnshaw discloses code adapted to derive a processor utilization for one or more processors of the plurality of simulated processors based on the respective contributions to processor occupancy (**page 1372 column 1 first paragraph lines 13-16**).

As per claim 22,

Earnshaw discloses code adapted to derive a bandwidth utilization for one or more links of the plurality of simulated active links based on the plurality of simulated outgoing messages between the one or more simulated active links (**page 1367 column 1 section 3.2.2 lines 1-6**).

As per claim 23,

Earnshaw discloses code adapted to derive a message load distribution based on at least the distribution of the plurality of simulated messages between the one or more respective simulated processors (**page 1368 column 1 section 3.2.5 lines 8-13**).

As per claim 25,

Earnshaw discloses the device comprising a special purpose computer (**page 1366 column 2 section 3.1 lines 7-11,** transputer network).

As per claim 26,

Earnshaw discloses a method for manufacturing a device for modeling a communication system, comprising the step of:

- loading a computer program onto a device (**Column 8 lines 35-47**), wherein the computer program comprises:
    - code adapted to a plurality of simulated messages (**page 1366 column 2 section 3.1 lines 11-19**, "passing messages between processors") to one or more simulated external nodes (**page 1372 figure 8**, external nodes being those transputers with local exchanges) based upon at least a simulated call model (**page 1368 section 3.2.4 lines 1-5**, "event list") and a simulated network configuration (**page 1366 column 2 section 3.1 lines 11-19**, "network...configured in arbitrary topologies");
    - code adapted to distribute the plurality of simulated messages between a plurality of simulated active links (**page 1372 figure 8**, links between local exchanges and turnk exchanges) connecting the one or more simulated external nodes to a plurality of simulated processors of a simulated telecommunication facility based on at least the simulated network configuration (**figure 8,** facility being the group of transputers, i.e. microprocessors, with the trunk exchange);

- code adapted to distribute the plurality of simulated messages between the plurality of simulated processors (**figure 8,** shown as each local exchange being dually connected to two trunk exchanges. See p. 1372 column 1 lines 1-6) based on at least a simulated network architecture (**page 1365 column 2 second full paragraph lines 1-6**);
- code adapted to generate a plurality of simulated outgoing messages based upon at least the plurality of simulated messages and the simulated call model (**page 1368 column 2 last paragraph lines 1-6**, outgoing messages being "switched" messages); and
- code adapted to distribute the plurality of simulated outgoing messages between the plurality of simulated active links based on at least the simulated network configuration and the simulated network architecture (**figure 8,** messages being sent between processors. See p. 1372 column 2 first full paragraph lines 1-9).

As per claim 28,

Earnshaw discloses the device comprising a special purpose computer (**page 1366 column 2 section 3.1 lines 7-11,** transputer network).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 9, 11, 24, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earnshaw as applied to claims 1-8, 10, 12-23, 25-26, and 28 above, in view of Scoggins et al., "*A Teletraffic Simulator for Circuit Switched and Signaling Intelligent Network with SS7*," published in the Proceedings of the 1991 Winter Simulation Conference.

As per claim 9,

Earnshaw does not disclose expressly the plurality of simulated processors representing components of a legacy network. Scoggins discloses a simulation of telecommunications networks (**page 688 column 2 second full paragraph lines 1-7**), where simulated some of the processors represent components of a legacy network (**page 692 column 1 first full paragraph lines 1-4**, components from circuit-switched network).

It would have been obvious to one of ordinary skill in the art of telecommunications simulation, at the time of the present invention, to modify Earnshaw's broadband telecommunication simulator with Scoggins' hybrid simulator in order to achieve a simulator that works with both legacy networks and more recent networks. The motivation for doing so would have been to increase flexibility by adding new network features onto a simulator without affecting already existing functions (Scoggins page 689 column 1 lines 1-11).

As per claim 11,

Earnshaw does not disclose expressly upgrading a mobile switching center based on the simulated network configuration. Scoggins discloses a simulation of telecommunications networks (**page 688 column 2 second full paragraph lines 1-7**), where switching locations are upgraded based on the network configuration (**page 692 column 2 second full paragraph lines 9-15**), and wherein the simulated network configuration results in a desired distribution of the plurality of simulated messages between the plurality of simulated processors (**page 689 column 2 first full paragraph lines 1-5**).

It would have been obvious to one of ordinary skill in the art of telecommunications simulation, at the time of the present invention, to modify Earnshaw's broadband telecommunication simulator with Scoggins' upgraded switching locations in order to achieve a simulator that upgrades a simulated mobile switching center based on a simulated network configuration. The motivation for doing so would have been make message transfer more reliable by managing the message route and updating the routing table to control message transfer (Scoggins page 689 column 2 lines 4-12).

As per claims 24 and 27,

Earnshaw does not disclose expressly the device comprising a general purpose computer. Scoggins discloses a simulation of telecommunications networks (**page 688 column 2 second full paragraph lines 1-7**), implemented on a general purpose computer (**page 688 column 2 last paragraph lines 1-4**, implemented in CSIM).

It would have been obvious to one of ordinary skill in the art of telecommunication simulation, at the time of the present invention, to modify Earnshaw's broadband

telecommunication simulator to be able to be run on a general purpose computer, like that of Scoggins'. The motivation for doing so would have been to increase user interaction by including interfaces to display inputs, statistics, and simulation status to the user (Scoggins page 691 column 1 last paragraph lines 1-8).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

    a. "SwiMNet: A Scalable Parallel Simulation Testbed for Wireless and Mobile Networks," by Boukerche et al., published by Kluwer Academic in 2001.

    b. "Exploiting Model Independence for Parallel PCS Network Simulation," by Boukerche et al., published by IEEE in 1999.

    c. "Distributed Network Simulations using the Dynamic Simulation Backplane," by Riley et al., published by IEEE in 2001.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Thornewell whose telephone number is (571)272-6543. The examiner can normally be reached on 8am-4:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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